

Beyond N-terminal Prohormone of Brain Natriuretic Peptide and Right Ventricular to Left Ventricular: Refining Risk Stratification in Acute Pulmonary Embolism

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Dear Editor

We read the published article by Arı et al. (1) entitled “Role of Cardiac Biomarkers and Tomographic Right Ventricular Dysfunction Findings in the Treatment of Pulmonary Thromboembolism.” This study represents a significant advance in evaluating and managing pulmonary thromboembolism (PTE). It highlights the combined utility of N-terminal prohormone of brain natriuretic peptide (NT-proBNP) levels and right ventricular to left ventricular (RV/LV) ratio in predicting the need for thrombolytic therapy. The authors present convincing evidence for the diagnostic and prognostic value of integrating biochemical and imaging findings. The high sensitivity and specificity reported for combined NT-proBNP and RV/LV parameters are noteworthy as they provide a feasible approach for early risk stratification. This integration may improve clinical workflows, especially in the acute setting where rapid and reliable risk assessments are critical (2). Although the study is robust and well-designed, several aspects deserve further consideration to increase its applicability and generalizability. For example, variability in NT-proBNP levels across demographic and clinical subgroups, such as elderly patients or those with preexisting cardiovascular conditions, may impact predictive accuracy (3). Future research could examine adjustments or alternative thresholds tailored to such subpopulations. Furthermore,

the timing of biomarker measurement remains an important factor in establishing diagnostic reliability, particularly in dynamic conditions such as acute PTE (4,5). Including details on whether single or serial measurements were made would enhance clinical interpretation of the role of NT-proBNP in prognosis. The ratio of pulmonary artery diameter to aortic diameter, the pulmonary artery diameter to ascending aortic diameter ratio, is less predictive compared with NT-proBNP and RV/LV, but offers intriguing potential as an adjunctive marker (6). Exploring its use in scenarios where other markers provide borderline results may enhance its clinical utility, particularly in settings where biomarker testing is less accessible.

Further exploration of the broader economic implications of integrating these markers into routine practice is warranted, since their adoption may face cost-effectiveness issues in resource-limited settings. These considerations notwithstanding, the findings of this study contribute significantly to the field. The integration of imaging and biomarker data provides a template for future research and the development of clinical protocols and thus represents a forward-looking approach to PTE management. Extending these findings to multicenter and longitudinal studies will further validate their utility across diverse populations and healthcare systems.



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We commend the authors for their valuable work, which provides a foundation for improved diagnostic and therapeutic strategies in PTE. This study sets a benchmark for future innovation in the field, highlighting the critical role of interdisciplinary approaches in addressing complex cardiovascular emergencies.

Footnotes

Authorship Contribution

Concept: R.A., E.A., F.Ö., İ.A., Design: R.A., E.A., F.Ö., İ.A., Data Collection or Processing: R.A., E.A., F.Ö., Analysis or Interpretation: R.A., E.A., İ.A., Literature Search: R.A., E.A., İ.A., Writing: R.A., E.A., F.Ö., İ.A.

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